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## ESTIMATING THE PAST MARTIAN OCEAN DEPTH

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Sulfur is a ubiquitous element on the surface of Mars, as has been observed from Earth, from Viking and the Pathfinder landing missions. Assuming it is of aqueous origin at certain locations, I have calculated how much sulfur would have precipitated out of the past Martian ocean using the average sulfur concentration of 2.5 g/L in the modern terrestrial ocean, the mass conservation law for sulfur and the terrestrial ocean depth. I have also considered the inverse problem: if a current partial weight of sulfur per unit area on Mars were measured to have a certain value, how deep would the past ocean have been. Because the terrestrial sulfur concentration is high, the depth of the past Martian ocean should be considered as a lower estimate. Since plate tectonics has not been observed on Mars, sulfur deposits would normally remain on the Martian surface. I have calculated that if the current sulfur weight on Mars is 24.84 g/cm<sup>2</sup>, then it has precipitated out of a water column 100 m deep. From the linearity of the equation: 2.484 g/cm<sup>2</sup> would have been deposited from a 10 m deep water column, or 248.4 g/cm<sup>2</sup> from a 1000 m deep water column.

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